

### **REMARKS**

Claims 1 to 41, as amended, appear in this application for the Examiner's review and consideration. The amendments to the specification and claims are fully supported by the specification and claims as originally filed. In particular, the specification has been amended to correct certain obvious typographical errors. Support for amendments to the claims, in particular, support for the recitation of determining the position of the incident radiation on the PSD from the measurement of the first and second currents may be found in the specification, starting at page 23, in the section titled "Position Determination."

Applicants acknowledge with appreciation the indication of allowable subject matter in claims 5, 6, 20, 25, 26 and 39. Applicants respectfully submit that, for the reasons set forth below, all of the present claims are in condition for allowance.

Claims 1 to 4, 8, 10, 12, 15, 21 to 24, 28, 30 and 33 were rejected under 35 U.S.C. §102(e) as allegedly being anticipated by U.S. Patent Application Publication No. US 2002/0074935 to Kwong, et al. ("Kwong"), now U.S. Patent No. 6,803,720, which issued October 12, 2004, for the reasons set forth on pages 2 to 6 of the Office Action. Claims 11, 13, 29, 31 and 32 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kwong in view of U.S. Patent Application Publication No. US 2003/007736 to Harada for the reasons set forth on page 6 of the application. Claims 16 and 34 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Kwong in view of U.S. Patent No. 6,670,213 to Halls et al. ("Halls") for the reasons set forth on pages 6 and 7 of the Office Action. Claims 7, 9, 18, 19, 27, 35 to 38, 40 and 41 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kwong for the reasons set forth on pages 7 to 9 of the Office Action.

In response, Applicants submit that the presently claimed invention is directed to organic position sensitive detectors and to a method of determining the position of incident radiation with such a detector. As recited in claim 1, the organic position sensitive detector of the presently claimed invention comprises a first electrode, where the first electrode is resistive and has a first point and a second point, a first contact in electrical contact with the first point on the first electrode, a second contact in electrical contact with the second point on the first electrode, a second electrode disposed near the first electrode, a donor semiconductive organic layer disposed between the first electrode and the second electrode, and an acceptor semiconductive organic layer disposed between the first electrode and the second electrode, and adjacent to the donor semiconductive organic layer. A hetero-junction

is located between the donor layer and the acceptor layer, and at least one of the donor layer and the acceptor layer is light absorbing.

As recited in claim 21, the organic position sensitive detector of the presently claimed invention comprises a first electrode, where the first electrode is resistive and has a first point and a second point, a first contact in electrical contact with the first point on the first electrode, a second contact in electrical contact with the second point on the first electrode, a second electrode disposed near the first electrode; and a semiconductive organic layer disposed between the first electrode and the second electrode, where the organic layer comprises at least one light absorbing material. The claimed detector is configured and adapted for measuring a lateral photovoltage.

In contrast to the presently claimed invention, Kwong discloses electroluminescent or light-emitting devices (“OLEDs”) that utilize a phosphorescent-doped mixed layer architecture that reportedly provides enhanced stability and efficiency. Page 1, [0001] and [0010]. The disclosed devices emit light when a proper bias voltage is applied across the device. Page 2, [0022]; page 3 [0049]. As will be recognized by those of ordinary skill in the art, OLEDs do not comprise semiconductive organic donor and acceptor layers, hetero-junctions, and light absorbing materials, as presently claimed.

Therefore, Kwong does not disclose or suggest organic light detectors of any kind, and, in particular, does not disclose or suggest the organic position sensitive detectors (“OSPDs”) of the presently claimed invention. As stated in the Office Action, Kwong, in Fig. 1A and in the text describing that figure at page 1, [0003] and [0004], discloses a prior art OLED having a “double heterostructure.” Such a heterostructure is not the hetero-junction between the donor and acceptor layers of the presently claimed detector. One of ordinary skill in the art would understand that the device disclosed by Kwong is a light emitting device, rather than the presently claimed detector, and that the disclosed OLED is not a detector, and cannot function as a detector. OLEDs will not function with a layer of light absorbing material, as presently claimed.

Accordingly, Kwong does not disclose or suggest a detector. Instead, Kwong discloses an OLED. Moreover, Kwong fails to disclose or suggest a detector comprising a layer of light absorbing material, a hetero-junction, and semiconductive organic acceptor and donor layers, as presently recited in claim 1, as OLEDs do not comprise such structures. Moreover, Kwong fails to disclose a detector comprising a layer of light absorbing material that is configured and adapted for measuring a lateral photovoltage, as recited in claim 21.

Contrary to the statement in the Office Action that the recitation in claim 21, as originally filed, “wherein the detector is adapted for measuring a lateral photovoltage” is an intended-use limitation that allegedly does not patentably or structurally distinguish the claimed invention from the structure disclosed by Kwong, the recitation in claim 21 is clearly a statement of structure that distinguishes the presently claimed invention from the cited prior art. Rather than being an intended-use, the recitation of “adapted for measuring a lateral photovoltage” clearly requires a physical element in the claimed detector that is capable of measuring voltage. That is, the presently claimed invention, as recited in claim 21, requires a physical device that measures voltage. As Kwong does not disclose or suggest such a device for measuring voltage in the disclosed OLED, the invention, as recited in claim 21, is patentably distinguished from Kwong.

However, to clarify the claimed invention without further limitation, Applicants have amended claim 21 to recite that the detector is configured and adapted for measuring a lateral photovoltage. Therefore, claim 21 requires the claimed invention to be configured and adapted for measuring a lateral photovoltage. This is a claim of structure, not an intended use.

Therefore, Kwong does not disclose or suggest the presently claimed OPDs.

Harada does nothing to overcome the deficiencies of Kwong. Harada discloses an optical transmission module and an optical transceiver. As stated in the Office Action at page 6, the optical transmission module disclosed by Harada has a light-detection layer comprising layers of PTCBI and BCP. However, incorporating such a layer into the OLED disclosed by Kwong would not provide the presently claimed invention. Instead, the combination would provide an OLED with a light detection layer. This is not the presently claimed detector.

Halls also fails to overcome the deficiencies of Kwong. Halls discloses a method of preparing a photoresponsive device and devices made with the disclosed method, where the devices comprise a layer of the polymer blend PEDOT:PSS. However, incorporating such a layer into the OLED disclosed by Kwong would not provide the presently claimed invention. Instead, the combination would provide an OLED with a layer of the polymer blend PEDOT:PSS. This is not the presently claimed detector.

Therefore, Kwong, Harada and Halls, whether taken alone or in combination do not disclose or suggest the presently claimed detectors.

The method of the invention comprises obtaining an organic position sensitive detector (PSD), where the PSD comprises a first electrode, which is resistive, and has a first point and a second point, a first contact in electrical contact with the first point on the first electrode, a second contact in electrical contact with the second point on the first electrode, a

second electrode disposed near the first electrode, and a semiconductive organic layer disposed between the first electrode and the second electrode, where the organic layer comprises at least one light absorbing material. The presently claimed method further comprises placing the PSD in the path of the incident radiation, measuring a first current at the first contact and a second current at the second contact, and determining the position of the incident radiation on the PSD from the measurement of the first and second currents.

In contrast to the presently claimed method, Kwong discloses applying a bias voltage to the top electrode 17 and the contacts 15 and 16 of the DH OLED illustrated in Fig. 1A to cause the emission of light from the emission layer 13. Again, Kwong fails to disclose any type of detector, and, thus, fails to disclose or even suggest anything regarding the detection of light. In particular, as stated in the Office Action at page 8, Kwong fails to disclose or even suggest the steps of placing a PSD in the path of incident radiation, measuring the currents at first and second contacts, and determining the position of the incident light from the currents at the first and second contacts.

The statement in the Office Action that “it would have been obvious to someone of ordinary skill in the art, at the time of the invention, to provide the claimed steps, since those are known-functions of detector devices in order to measure current caused by incident light” is clearly incorrect. Kwong discloses OLEDs and the use of OLEDs. Kwong does not disclose or even suggest a detector of any type or any method of using a detector. As Kwong discloses a biased OLED, not a detector or the use of a detector, Kwong fails to provide any motivation to one of ordinary skill in the art to place an organic position sensitive detector into the path of incident radiation, measure currents produced at first and second contacts by the absorption of the radiation, and determine the position of the incident radiation on the detector from the measurement of the currents, as presently claimed. Therefore, based on the teaching of Kwong, one of ordinary skill in the art would have no motivation to practice the presently claimed method, and the presently claimed method is not obvious over that reference.

Therefore, as Kwong, Harada, and Halls, whether taken alone or in combination, fail to disclose or suggest the presently claimed invention, and provide no motivation to obtain the invention, the claims are not anticipated by or obvious over those references. Accordingly, it is respectfully requested that the Examiner withdraw the rejections of the claims under 35 U.S.C. §§ 102(e) and 103(a).

Applicants submit that the entire application is now in condition for allowance, an early notice of which would be appreciated. Should the Examiner not agree with Applicants’

position, a personal or telephonic interview is respectfully requested to discuss any remaining issues prior to the issuance of a further Office Action, and to expedite the allowance of the application.

No fee is believed to be due of the submission of this Amendment. Should any fees be due, please charge such fees to Deposit Account No. 11-0600.

Respectfully submitted,

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